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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/730,396 | 12/08/2003 | Ludwig Kraus | 298-221 | 4589 |

7590 08/12/2005

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| EXAMINER |
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RILEY, SHAWN

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| ART UNIT | PAPER NUMBER |
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2838

DATE MAILED: 08/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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|------------------------------|--------------------------------------|-------------------------------------|--|
| Office Action Summary | Application No. 10/730,396 | Applicant(s) KRAUS ET AL. | |
| | Examiner Shawn Riley | Art Unit 2838 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 july 2005 RCE.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14, 17, 18 and 21-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14, 17 and 18 is/are rejected.
- 7) ☒ Claim(s) 21-24 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Status of Case

Applicants Request for Continuing Examination has been processed and in light of the amendments therein, this new non-final office action has been generated.

Claim Rejections - 35 U.S.C. § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-14, and 17-18 are rejected under 35 U.S.C. § 102(b) as anticipated¹ by Sakurai (U.S. Patent 5,253,156).

As to claim 1;

¹ Note claims will be addressed individually and the material in parentheses are the examiner's annotated comments. Further unless needed for clarity reasons, recited limitation(s), will be annotated only upon their first occurrence. Annotated claims begin with the phrase "As to claim". Claims that are not annotated are seen as having already had the invention(s) addressed previously in an annotated claim. Bolded words/phrases indicate rejected material based 112 paragraph rejections. Underlined words/phrases indicate objected to material. For method claims, note that under MPEP 2112.02, the principles of inherency, if a prior art device, in its normal and usual operation, would necessarily perform the method claimed, then the method claimed will be considered to be anticipated by the prior art device. When the prior art device is the same as a device described in the specification for carrying out the claimed method, it can be assumed the device will inherently perform the claimed process. In re King, 801 F.2d 1324, 231 USPQ 136 (Fed. Cir. 1986). Therefore the previous rejections based on the apparatus will not be repeated.

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Method (as shown in figure 2) of operating multiple (n) parallel-connected (via a y-connected load/motor) pulse-controlled (column 2 lines 54-58) inverters (Q1/Q2, Q3/Q4, and Q5/Q6), wherein the individual currents of the (n) pulse-controlled inverters, or of a number reduced by 1 (n-1) of pulse-controlled inverters (1, 2) is/are regulated (by the CONTROLLER, e.g., column 2 lines 61-63) and each pulse-controlled inverter includes first (Q1, Q3, Q5) and second (Q2, Q4, Q6) insulated gate bipolar transistors and first (D1, D2, D3) and second (D2, D4, D6) diodes each connected in parallel with a respective one of the first and second insulated gate bipolar transistors in the direction of reverse voltage (UD-) to forward voltage (UD+).

As to claim 2;

Method according to Claim 1, characterized in that the individual currents from two pulse-controlled inverters are regulated (by the CONTROLLER).

As to claim 3;

Method according to Claim 1, characterized by pulse-controlled inverters of the same output (see, e.g., motor connected to y connected output).

As to claim 4;

Method according to Claim 3, characterized in that the total current is uniformly distributed among pulse-controlled inverters (job of controller) of the same output.

As to claim 5;

Method according to Claim 1, wherein each pulse-controlled inverter is regulated separately, with each regulator having sensed currents to separately adjust each regulator

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(each regulator has sensed currents via CURRENT DETECTION CIRCUIT to separately adjust each regulator, via the LOGIC CIRCUIT).

As to claim 6;

Method according to Claim 1, characterized in that the input variable of regulation is generated by the difference (without determining a difference, no control is possible) between the setpoint value (V1) and the actual value of the corresponding output current (current based on an input), and by the modulation pattern (from SIGNAL GENERATION CIRCUIT 4).

As to claim 7;

Method according to Claim 1, characterized in that the control edges of the power semiconductors are shifted within the pulse-controlled inverters (this is the definition of pwm signals, the pulse's width is changed/modulated/(edge controlled)).

As to claim 8;

Method according to Claim 1, characterized in that each phase of one, of multiple, or of all pulse-controlled inverters (1, 2) is regulated individually (see above rejection of claim 5).

As to claim 9;

Method according to Claim 1, characterized in that the gain factors (K1, K2) of regulation are dependent on external limiting conditions (external limiting condition current and temperature).

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10. Method according to Claims 2 characterized by pulse-controlled inverters (1 , 2) of the same output.

11 Method according to Claim 10, characterized in that the total current is uniformly distributed among pulse-controlled inverters (1 , 2) of the same output.

12. Method according to Claim 2, characterized in that each pulse-controlled inverter (1, 2) is regulated separately, with each regulator having sensed currents to separately adjust each regulator.

13. Method according to Claim 3, characterized in that each pulse-controlled inverter (1 , 2) is regulated separately, with each regulator having sensed currents to separately adjust each regulator.

14. Method according to Claim 4, characterized in that each pulse-controlled inverter (1 , 2) is regulated separately, with each regulator having sensed currents to separately adjust each regulator.

17. Method according to Claim 2, characterized in that the input variable of regulation is generated by the difference between the setpoint value and the actual value of the corresponding output current, and by the modulation pattern.

18. Method according to Claim 3, characterized in that the input variable of regulation is generated by the difference between the setpoint value and the actual value of the corresponding output current, and by the modulation pattern.

Note that applicants are presumed to have knowledge of their art and therefore may be expected to recognize, e.g., how legs of a bridge are controlled, i.e., the legs of a bridge are controlled separately. Further, differences should be pointed out not between disclosure and the prior art but what is claimed and the prior art. The rejection of the instant invention did not rely on the disclosure but the claims in light of the disclosure. That is, the rejection is based heavily on what the claims state and not solely on what the disclosure discloses. As recited, the claims are anticipated by the disclosure of the prior art.

Allowable Subject Matter

3. Claims 21- 24 would be allowable over the prior art of record if written in independent form including the limitations from which they depend.

No prior art anticipates or renders obvious applicants method including when the actual value of the current is smaller than the setpoint value, the turn-on edge of the first transistor and turn-off

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edge of the second transistor are undelayed, with the turn-off edge of the first transistor and turn-on edge of the second transistor each being delayed, and when the actual value of the current equals the setpoint value, the turn-on edges and turn-off edges of the first and second transistors all remain undelayed.

Conclusion

Any inquiry from other than the applicant/attorney of record concerning this communication or earlier communications from the Examiner should be directed to the Patent Electronic Business Center (EBC) at 1.866.217.9197. Any inquiry from a member of the press concerning this communication or earlier communications from the Examiner or the application should be directed to the Office of Public Affairs at 703.305.8341. Any inquiry from the applicant or an attorney of record concerning this communication or earlier communications from the Examiner should be directed to Examiner Riley whose telephone number is 571.272.2083. The Examiner can normally be reached Monday through Thursday from 7:30-6:00 p.m. Eastern Standard Time. The Examiner's Supervisor is Mike Sherry who can be reached at 571.272.2084. Any inquiry about a case's location, retrieval of a case, or receipt of an amendment into a case or information regarding sent correspondence to a case **should be directed to 2800's Customer Service Center** at 571.272.2815. Any inquiry of a general nature of this application should be **directed to the Group receptionist** whose telephone number is 571.272.2800. Status information of cases may be found at <http://pair-direct.uspto.gov> wherein unpublished application information is found through private PAIR and published application information is found through public PAIR. Further help on using the PAIR system is available at 1.866.217.9197 (Electronic Business Center).

August 05



Shawn Riley
Primary Examiner